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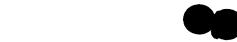
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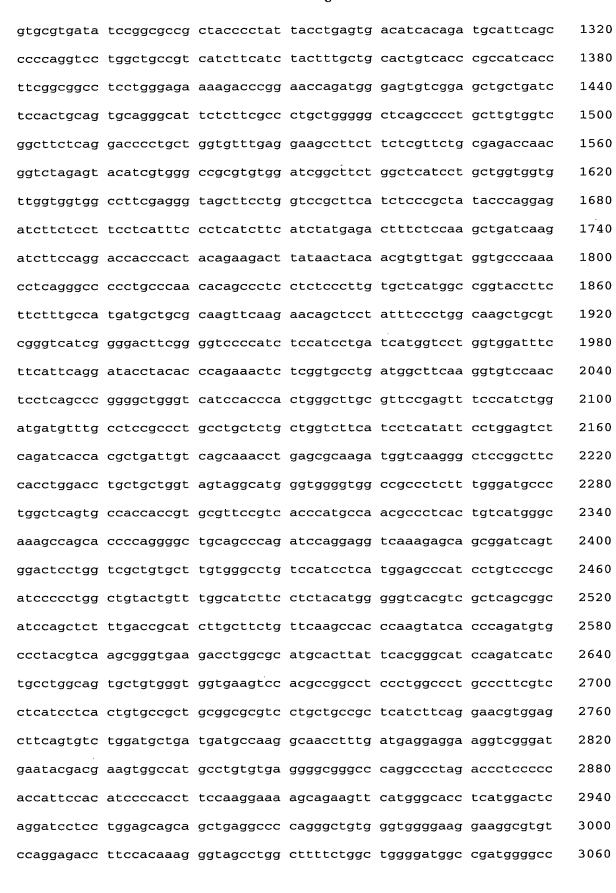
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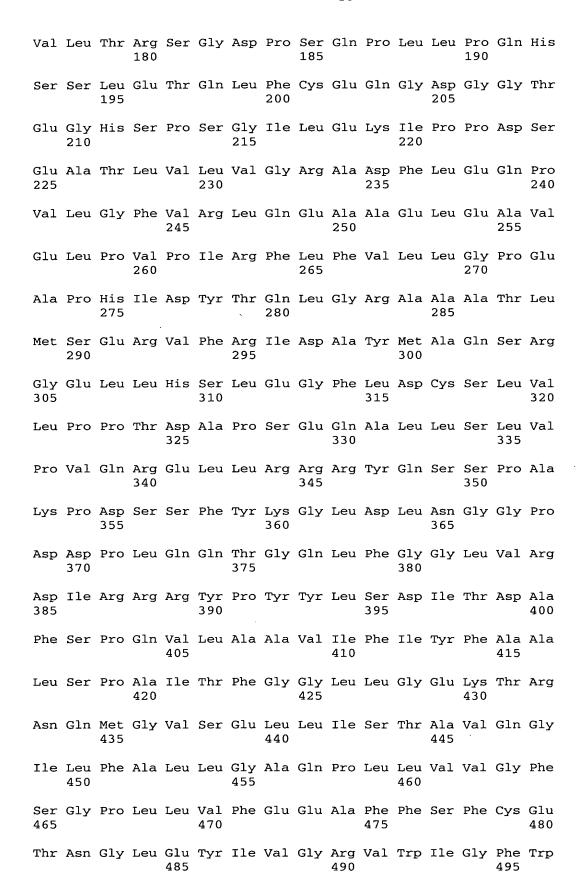
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His Ser His Ala Gly Glu Leu Glu Ala Leu Gly Gly Val Lys Pro Ala 165 170 175







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<211> 1639

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<213> Plasmodium falciparum

<400> 10





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Gly Gly Ser Val Ala Ser Gly Gly Ser Gly Asn Ser Arg Arg Thr Asn 100 105 110

Pro Ser Asp Asn Ser Ser Asp Ser Asp Ala Lys Ser Tyr Ala Asp Leu 115 120 125

Lys His Arg Val Arg Asn Tyr Leu Leu Thr Ile Lys Glu Leu Lys Tyr 130 140

Pro Gln Leu Phe Asp Leu Thr Asn His Met Leu Thr Leu Cys Asp Asn 145 150 155 160

Ile His Gly Phe Lys Tyr Leu Ile Asp Gly Tyr Glu Glu Ile Asn Glu 165. 170 175

Leu Leu Tyr Lys Leu Asn Phe Tyr Phe Asp Leu Leu Arg Ala Lys Leu 180 185 190

Asn Asp Val Cys Ala Asn Asp Tyr Cys Gln Ile Pro Phe Asn Leu Lys 195 200 205

Ile Arg Ala Asn Glu Leu Asp Val Leu Lys Lys Leu Val Phe Gly Tyr 210 215 220

Arg Lys Pro Leu Asp Asn Ile Lys Asp Asn Val Gly Lys Met Glu Asp 225 230 235 240

Tyr Ile Lys Lys Asn Lys Lys Thr Ile Glu Asn Ile Asn Glu Leu Ile 245 250 255

Glu Glu Ser Lys Lys Thr Ile Asp Lys Asn Lys Asn Ala Thr Lys Glu 260 265 270

Glú Glu Lys Lys Leu Tyr Gln Ala Gln Tyr Asp Leu Ser Ile Tyr 275 280 285

Asn Lys Gln Leu Glu Glu Ala His Asn Leu Ile Ser Val Leu Glu Lys 290 295 300

Arg Ile Asp Thr Leu Lys Lys Asn Glu Asn Ile Lys Glu Leu Leu Asp 305 310 315 320

Lys Ile Asn Glu Ile Lys Asn Pro Pro Pro Ala Asn Ser Gly Asn Thr 325 330 335

Pro Asn Thr Leu Leu Asp Lys Asn Lys Lys Ile Glu Glu His Glu Lys 340 345 350

Glu Ile Lys Glu Ile Ala Lys Thr Ile Lys Phe Asn Ile Asp Ser Leu 355 360 365





Phe Thr Asp Pro Leu Glu Leu Glu Tyr Tyr Leu Arg Glu Lys Asn Lys 370 375 380

Asn Ile Asp Ile Ser Ala Lys Val Glu Thr Lys Glu Ser Thr Glu Pro 385 390 395 400

Asn Glu Tyr Pro Asn Gly Val Thr Tyr Pro Leu Ser Tyr Asn Asp Ile 405 410 415

Asn Asn Ala Leu Asn Glu Leu Asn Ser Phe Gly Asp Leu Ile Asn Pro 420 425 430

Phe Asp Tyr Thr Lys Glu Pro Ser Lys Asn Ile Tyr Thr Asp Asn Glu 435 440 445

Arg Lys Lys Phe Ile Asn Glu Ile Lys Glu Lys Ile Lys Ile Glu Lys 450 460

Lys Lys Ile Glu Ser Asp Lys Lys Ser Tyr Glu Asp Arg Ser Lys Ser 465 470 475 480

Leu Asn Asp Ile Thr Lys Glu Tyr Glu Lys Leu Leu Asn Glu Ile Tyr
485 490 495

Asp Ser Lys Phe Asn Asn Asn Ile Asp Leu Thr Asn Phe Glu Lys Met 500 505 510

Met Gly Lys Arg Tyr Ser Tyr Lys Val Glu Lys Leu Thr His His Asn 515 520 525

Thr Phe Ala Ser Tyr Glu Asn Ser Lys His Asn Leu Glu Lys Leu Thr 530 535 540

Lys Ala Leu Lys Tyr Met Glu Asp Tyr Ser Leu Arg Asn Ile Val Val 545 550 555 560

Glu Lys Glu Leu Lys Tyr Tyr Lys Asn Leu Ile Ser Lys Ile Glu Asn 565 570 575

Glu Ile Glu Thr Leu Val Glu Asn Ile Lys Lys Asp Glu Glu Gln Leu 580 585 590

Phe Glu Lys Lys Ile Thr Lys Asp Glu Asn Lys Pro Asp Glu Lys Ile 595 600 605

Leu Glu Val Ser Asp Ile Val Lys Val Gln Val Gln Lys Val Leu Leu. 610 620

Met Asn Lys Ile Asp Glu Leu Lys Lys Thr Gln Leu Ile Leu Lys Asn 625 630 635 640

Val Glu Leu Lys His Asn Ile His Val Pro Asn Ser Tyr Lys Gln Glu 645 650 655

Asn Lys Gln Glu Pro Tyr Tyr Leu Ile Val Leu Lys Lys Glu Ile Asp
660 665 670

Lys Leu Lys Val Phe Met Pro Lys Val Glu Ser Leu Ile Asn Glu Glu 675 680 685

715



Lys Lys Asn Ile Lys Thr Glu Gly Gln Ser Asp Asn Ser Glu Pro Ser

Thr Glu Gly Glu Ile Thr Gly Gln Ala Thr Thr Lys Pro Gly Gln Gln 710

695

Ala Gly Ser Ala Leu Glu Gly Asp Ser Val Gln Ala Gln Ala Gln Glu 730

Gln Lys Gln Ala Gln Pro Pro Val Pro Val Pro Val Pro Glu Ala Lys 740 745

Ala Gln Val Pro Thr Pro Pro Ala Pro Val Asn Asn Lys Thr Glu Asn 760

Val Ser Lys Leu Asp Tyr Leu Glu Lys Leu Tyr Glu Phe Leu Asn Thr

Ser Tyr Ile Cys His Lys Tyr Ile Leu Val Ser His Ser Thr Met Asn 795

Glu Lys Ile Leu Lys Gln Tyr Lys Ile Thr Lys Glu Glu Glu Ser Lys 810

Leu Ser Ser Cys Asp Pro Leu Asp Leu Leu Phe Asn Ile Gln Asn Asn 820

Ile Pro Val Met Tyr Ser Met Phe Asp Ser Leu Asn Asn Ser Leu Ser 840

Gln Leu Phe Met Glu Ile Tyr Glu Lys Glu Met Val Cys Asn Leu Tyr 850

Lys Leu Lys Asp Asn Asp Lys Ile Lys Asn Leu Leu Glu Glu Ala Lys 875

Lys Val Ser Thr Ser Val Lys Thr Leu Ser Ser Ser Met Gln Pro 885 890

Leu Ser Leu Thr Pro Gln Asp Lys Pro Glu Val Ser Ala Asn Asp Asp 905

Thr Ser His Ser Thr Asn Leu Asn Asn Ser Leu Lys Leu Phe Glu Asn 915 920

Ile Leu Ser Leu Gly Lys Asn Lys Asn Ile Tyr Gln Glu Leu Ile Gly 935

Gln Lys Ser Ser Glu Asn Phe Tyr Glu Lys Ile Leu Lys Asp Ser Asp 950

Thr Phe Tyr Asn Glu Ser Phe Thr Asn Phe Val Lys Ser Lys Ala Asp

Asp Ile Asn Ser Leu Asn Asp Glu Ser Lys Arg Lys Leu Glu Glu 980

Asp Ile Asn Lys Leu Lys Lys Thr Leu Gln Leu Ser Phe Asp Leu Tyr 1000 1005 995





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Ser	Glu 1250	Glu	Asp	Tyr	Asp	Asp 1255	Leu	Gly	Gln	Val	Val 1260	Thr	Gly	Glu
Ala	Val 1265	Thr	Pro	Ser	Val	Ile 1270	Asp	Asn	Ile	Leu	Ser 1275	Lys	Ile	Glu
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Leu	Thr 1340	Ser	Ser	Asn	Tyr	Val 1345	Val	Lys	Asp	Pro	Туr 1350	Lys	Phe	Leu
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Lys	Asp 1370	Ser	Ile	Asp	Thr	Asp 1375		Asn	Phe	Ala	Asn 1380	Asp	Val	Leu
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Ser	Ile 1400	Lys	Lys	Туr	Ile	Asn 1405	Asp	Lys	Gln	Gly	Glu 1410	Asn	Glu	Lys
Tyr	Leu 1415	Pro	Phe	Leu	Asn	Asn 1420	Ile	Glu	Thr	Leu	Tyr 1425	Lys	Thr	Val
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a 1	T	_		_				_						
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Lys	1460										1470			
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Lys Tyr Val	1460 Lys 1475 Asn 1490 Phe 1505	Asn His Glu	Asn Asn Asn	Asn Asn Leu	Phe Leu Ala	1465 Val 1480 Leu 1495	Gly Thr	Ile Lys Val	Ala Phe Leu	Asp Leu Ser	1470 Leu 1485 Ser 1500 Asn 1515	Ser Thr Leu	Thr Gly Leu	Asp Met Asp
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Lys Tyr Val Gly Lys Glu Asp	1460 Lys 1475 Asn 1490 Phe 1505 Asn 1520 Lys 1535 Arg 1550 Lys	Asn His Glu Leu Gln Glu	Asn Asn Gln Cys Glu Val	Asn Leu Gly Pro Cys Glu	Phe Leu Ala Met Gln Lys Asn	1465 Val 1480 Leu 1495 Lys 1510 Leu 1525 Asn 1540 Cys 1555 Pro	Gly Thr Thr Asn Ser Leu Asn	Ile Lys Val Ile Gly Leu Pro	Ala Phe Leu Ser Cys Asn	Asp Leu Ser Gln Phe Tyr	1470 Leu 1485 Ser 1500 Asn 1515 His 1530 Arg 1545 Lys 1560 Asn 1575	Ser Thr Leu Gln His Gln Glu	Thr Gly Leu Cys Leu Glu Asn	Asp Met Asp Val Asp Gly Asn



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<213> Plasmodium falciparum

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35 40 45

Asn Val Lys Asp Ile Leu Asn Ser Arg Phe Asn Lys Arg Glu Asn Phe 50 55 60

Lys Asn Val Leu Glu Ser Asp Leu Ile Pro Tyr Lys Asp Leu Thr Ser 65 70 75 80

Ser Asn Tyr Val Val Lys Asp Pro Tyr Lys Phe Leu Asn Lys Glu Lys 85 90 95

Arg Asp Lys Phe Leu Ser Ser Tyr Asn Tyr Ile Lys Asp Ser Ile Asp 100 105 110

Thr Asp Ile Asn Phe Ala Asn Asp Val Leu Gly Tyr Tyr Lys Ile Leu 115 120 125

Ser Glu Lys Tyr Lys Ser Asp Leu Asp Ser Ile Lys Lys Tyr Ile Asn 130 135 140

Asp Lys Gln Gly Glu Asn Glu Lys Tyr Leu Pro Phe Leu Asn Asn Ile 145 150 155 160

Glu Thr Leu Tyr Lys Thr Val Asn Asp Lys Ile Asp Leu Phe Val Ile 165 170 175

His Leu Glu Ala Lys Val Leu Asn Tyr Thr Tyr Glu Lys Ser Asn Val 180 185 190

Glu Val Lys Ile Lys Glu Leu Asn Tyr Leu Lys Thr Ile Gln Asp Lys 195 200 205

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Ser Thr Asp Tyr Asn His Asn Asn Leu Leu Thr Lys Phe Leu Ser Thr 225 230 235 240

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Met Gln Ile Lys Lys Leu Thr Leu Leu Lys Glu Gln Leu Glu Ser Lys



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Lys	Leu	Glu 115	Arg	Leu	Phe	Asp	Lys 120	Lys	Lys	Thr	Val	Gly 125	Lys	Tyr	Lys
Met	Gln 130	Ile	Lys	Lys	Leu	Thr 135	Leu	Leu	Lys	Glu	Gln 140	Leu	Glu	Ser	Lys
Leu 145	Asn	Ser	Leu	Asn	Asn 150	Pro	Lys	His	Val	Leu 155	Gln	Asn	Phe	Ser	Val 160
Phe	Phe	Asn	Lys	Lys 165	Lys	Glu	Ala	Glu	Ile 170	Ala	Glu	Thr	Glu	Asn 175	Thr
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Tyr	Tyr	Asn 195	Gly	Glu	Ser	Ser	Pro 200	Leu	Lys	Thr	Leu	Ser 205	Glu	Glu	Ser
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Lys Asn Lys Asn Ile Tyr Gln Glu Leu Ile Gly Gln Lys Ser Ser Glu 35 40 45

Asn Phe Tyr Glu Lys Ile Leu Lys Asp Ser Asp Thr Phe Tyr Asn Glu 50 55 60

Ser Phe Thr Asn Phe Val Lys Ser Lys Ala Asp Asp Ile Asn Ser Leu 65 70 75 80

Asn Asp Glu Ser Lys Arg Lys Leu Glu Glu Asp Ile Asn Lys Leu 85 90 95

Lys Lys Thr Leu Gln Leu Ser Phe Asp Leu Tyr Asn Lys Tyr Lys Leu 100 105 110

Lys Leu Glu Arg Leu Phe Asp Lys Lys Lys Thr Val Gly Lys Tyr Lys 115 120 125

Met Gln Ile Lys Lys Leu Thr Leu Leu Lys Glu Gln Leu Glu Ser Lys 130 135 140

Leu Asn Ser Leu Asn Asn Pro Lys His Val Leu Gln Asn Phe Ser Val
145 150 155 160

Phe Phe Asn Lys Lys Glu Ala Glu Ile Ala Glu Thr Glu Asn Thr 165 170 175

Leu Glu Asn Thr Lys Ile Leu Leu Lys His Tyr Lys Gly Leu Val Lys 180 185 190

Tyr Tyr Asn Gly Glu Ser Ser Pro Leu Lys Thr Leu Ser Glu Glu Ser 195 200 205

Ile Gln Thr Glu Asp Asn Tyr Ala Ser Leu Glu Asn Phe Lys Val Leu 210 215 220

Ser Lys Leu Glu Gly Lys Leu Lys Asp Asn Leu Asn Leu Glu Lys Lys 225 230 235 240

Lys Leu Ser Tyr Leu Ser Ser Gly Leu His His Leu Ile Ala Glu Leu 245 250 255





Lys Glu Val Ile Lys Asn Lys Asn Tyr Thr Gly Asn Ser Pro Ser Glu 260 265 270

Asn Asn Thr Asp Val Asn Asn Ala Leu Glu Ser Tyr Lys Lys Phe Leu 275 280 285

Pro Glu Gly Thr Asp Val Ala Thr Val Val Ser Glu Ser Gly Ser Asp 290 295 300

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Val Leu Glu Ser Asp Leu Ile Pro Tyr Lys Asp Leu Thr Ser Ser Asn 65 70 75 80

Tyr Val Val Lys Asp Pro Tyr Lys Phe Leu Asn Lys Glu Lys Arg Asp 85 90 95

Lys Phe Leu Ser Ser Tyr Asn Tyr Ile Lys Asp Ser Ile Asp Thr Asp 100 105 110

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Lys Tyr Lys Ser Asp Leu Asp Ser Ile Lys Lys Tyr Ile Asn Asp Lys 130 135 140

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Leu Tyr Lys Thr Val Asn Asp Lys Ile Asp Leu Phe Val Ile His Leu 165 170 175

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-31-

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Val Phe Glu	Asn Leu 245	_	Thr '	Val Le		Asn	Leu	Leu	Asp 255	Gly
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Gln Cys Pro 275	Gln Asn	Ser Gly	Z Cys : 280	Phe Ar	g His	Leu	Asp 285	Glu	Arg	Glu
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tga





1203

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1620

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<212> DNA

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-42-

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<211> 428

<212> PRT

<213> Plasmodium falciparum

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Lys Tyr Ile Cys Leu Thr Ile Cys Val Ile Gly Met Leu Cys Ile Lys $35 \hspace{1.5cm} 40 \hspace{1.5cm} 45$

Leu Arg Asp Lys Tyr Glu Gly Tyr Ala Ala Ser Gly Ile Gln Asn Asn 50 55 60

Asn Val Tyr Leu Arg Asn Leu Ser Glu Leu Gln Lys Gly Asn Gln Pro 65 70 75 80

Cys Leu Arg His Thr Asn Arg Thr Asp Asn Ser Lys Met Asn Lys Val 85 90 95

Lys Asn Asn Asn Gln Thr Glu Asn Asn Asp Asn Lys Lys Leu Gly
100 105 110

Asn Lys Glu Asp Asn Gln Gly Lys Asn Lys Asn Asn Asn Lys Glu 115 120 125

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Lys Ser Asn Lys Lys Leu Ser Gln Asp Tyr Asn Asp Val Asn Lys Lys 145 150 155 160

Phe Thr Lys Glu Gln Met Lys Asn Leu Val Asn Ser Leu Asp Glu Ile 165 170 175

Pro Pro Arg Asn Asp Met Glu Lys Ile Trp Asn His Ala Val Lys Thr 180 185 190

Ala Asn Ser Gly Thr Ser Arg Ile Lys Lys Lys Leu Lys Glu Tyr Glu 195 200 205

Gln Lys Tyr Gly Arg Cys Tyr Glu Glu Arg Pro Asn Arg Phe Gly Ser 210 215 220

Tyr Glu Gln Val Leu Ile Ser Gln Pro His Glu Phe Asn Glu Arg Leu 225 230 235 240

Lys Val His Glu Asn Asp Tyr Thr Val Phe Phe Tyr Glu Leu Leu Asp 245 250 255

Lys Asp Pro Thr Leu Asp Glu Ile Lys Asn Tyr Ile Thr Ser Phe Leu 260 265 270

Glu Gly Phe Gln Asn Leu Ile Asp Phe Leu Phe Asn Lys Tyr Lys Ile 275 280 285



Ile Phe Leu Gln Thr Thr Glu Ile Pro Ile Asp Gly Thr Ile Tyr 295 Asp Thr Ser Lys Lys Asp Met Lys Lys Asn Lys Asn Lys Lys Gln Asn 310 Ile Lys Gln Gly Gly Lys Lys Glu Glu Val Lys Gln Glu Gly Lys Lys 330 Glu Glu Val Lys Gln Glu Gly Lys Lys Glu Glu Val Lys Gln Glu Gly 340 345 Lys Lys Glu Glu Val Lys Gln Glu Gly Lys Lys Glu Glu Val Lys Gln 360 Gly Gly Lys Lys Glu Glu Val Lys Gln Gly Gly Lys Lys Glu Glu Val 375 Lys Gln Gly Gly Lys Lys Glu Glu Val Lys Gln Gly Gly Lys Lys Glu 395 Glu Val Lys Gln Gly Gly Lys Lys Glu Glu Val Lys Gln Gly Gly Lys 410 Lys Glu Glu Val Lys Lys Glu Leu Lys Lys Asn Asn <210> 47 <211> 1191 <212> PRT <213> Plasmodium falciparum <400> 47 Met Ile Phe Val Lys Ser Lys Ile Leu Tyr Phe Leu Lys Trp Pro Ser Val Ala Ile Glu Glu Asn Phe Ser Gly Ser Phe Lys Cys Leu Phe Lys Asn Lys Arg Asn Lys Tyr Asn Val Glu Ile Leu Lys Asn Asp Tyr Asn 40 Thr Leu Thr Glu Ser His Asn Ile Ile Asn Arg Arg Ser Arg Asn Leu 50 Gly Ala Asn Pro Glu Ser Ile Ser Leu Gly Tyr Glu Leu Ser Glu Lys 70 Asp Glu Gly Asn Lys Asn Asp Leu Ile Asn Ser Ala Thr Asp Val Ser 85 Thr Glu Leu Glu Asn Leu Lys Glu Arg Leu Phe Pro Glu Leu Glu Leu Tyr Thr Asn Asp Gln Asn Ser Arg Asn Asn Thr Pro Asn Leu Arg Lys

Gly Ser Leu Gly Phe Asp Ser Phe Lys Lys Leu Glu Leu Gly Thr Leu



	130					135					140				
Asn 145	Gln	Phe	Asp	Lys	Asp 150	Lys	Met	Ile	Asn	Leu 155	Lys	Asp	Glu	Thr	Asn 160
Met	Asn	Glu	Phe	Glu 165	Gly	Phe	Leu	Gly	Arg 170	Asn	Ser	Met	Ala	Ser 175	Asn
Val	Val	Thr	Ser 180	Glu	Leu	Phe	Asp	Glu 185	Pro	Val	Asp	Asp	Ser 190	Ser	Ser
Thr	Thr	Thr 195	Ser	Thr	Gly	Thr	Lys 200	Leu	Gln	Asn	Val	Pro 205	Ser	Asn	Asp
Asn	Asn 210	Gly	Glu	Leu	Leu	Lys 215	Asp	Glu	Pro	Ile	Asp 220	Asp	Tyr	Ile	Asn
Asn 225	Asn	Ser	Lys	Val	Glu 230	Ser	Glu	Asp	Asn	Tyr 235	Tyr	Ala	Gln	Gln	Asn 240
Met	Gln	Ser	Gln	Ser 245	Lys	Asp	Asn	Tyr	Ala 250	Ser	Glu	Gln	Asn	Val 255	Ala
Asp	Gln	Ser	Thr 260	Asp	Asn	Tyr	Pro	Thr 265	Gln	His	Asp	Val	Pro 270	Val	Gln
Leu	Arg	Asp 275	Asn	Tyr	Ala	Ser	Glu 280	Gln	Glu	Tyr	Phe	Asp 285	Arg	Gly	Glu
Gln	Leu 290	Asn	Asp	Val	Ser	Ala 295	Asp	Asn	Asn	Thr	Ser 300	Asn	Lys	Leu	Lys
Asp 305	Glu	Pro	Val	Asp	Asn 310	Asn	Thr	Ser	Asn	Lys 315	Leu	Lys	Asp	Glu	Pro 320
Val	Asp	Asn	Asn	Thr 325	Ser	Asn	Lys	Leu	Lys 330	Asp	Glu	Pro	Val	Asp 335	Asp
Asn	Thr	Ser	Asn 340	Lys	Leu	Lys	Asp	Glu 345	Pro	Val	Asp	Asn	Asn 350	Thr	Ile
Asn	Lys	Leu 355	Lys	Asp	Glu	Pro	Val 360	Asp	Asp	Asn	Thr	Ser 365	Asn	Ile	Leu
Lys	Asp 370	Glu	Pro	Val	Asp	Asp 375	His	Ala	Gly	Lys	His 380	Leu	Lys	Asp	Glu
Pro 385	Val	Asp	Asp	His	Ala 390	Gly	Lys	His	Met	Lys 395	Asp	Glu	Pro	Val	Asp 400
Ile	Asp	Arg	Thr	Asn 405	Ile	Lys	Lys	Gly	Leu 410	Asn	Glu	Gln	His	Val 415	Asn
Pro	Trp	Thr	Thr 420	Thr	Leu	Ala	Asp	Leu 425	Lys	Asn	Ile	Asn	Asn 430	Ser	Met
Lys	Ile	Glu 435	Lys	Asn	Asn	Lys	Ser 440	Asn	Glu	Gln	Val	Lys 445	Asn	Thr	Ser
Val	Ser	Lys	Ser	Cys	Asp	Ile	Ile	Lys	Pro	Ser	Lys	Phe	Asn	Lys	Lys



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	450					455					460				
Asn 465	Leu	Phe	Glu	Gln	Arg 470	Leu	Gln	Ser	Val	Glu 475	Gly	Lys	Asn	Phe	Phe 480
Glu	Gly	Arg	Ser	Gln 485	Asn	Leu	Glu	Gly	Arg 490	Ser	Asn	Phe	Asp	Glu 495	Arg
Ser	Gln	Ile	Val 500	Glu	Gln	Arg	Arg	Asn 505	Phe	Asp	Asp	Arg	Asp 510	Gln	Asn
Ile	Met	Asp 515	Arg	Lys	Asn	Phe	Asp 520	Glu	Arg	Asn	Gln	Gln 525	Val	Asn	Asp
Arg	Arg 530	Asn	Phe	Asp	Glu	Arg 535	Asn	Gln	Gln	Val	Asn 540	Asp	Arg	Arg	Asn
Phe 545	Asp	Asp	Arg	Asp	Gln 550	Asn	Val	Met	Asp	Arg 555	Arg	Asn	Phe	Asp	Glu 560
Arg	Asn	Gln	Gln	Val 565	Asn	Asp	Arg	Arg	Asn 570	Phe	Asp	Glu	Arg	Asn 575	Gln
Gln	Val	Asn	Asp 580	Arg	Arg	Asn	Phe	Asp 585	Asp	Arg	Asp	Gln	Asn 590	Val	Met
Asp	Arg	Arg 595	Asn	Phe	Asp	Glu	Arg 600	Asn	Gln	Gln	Val	Asn 605	Asp	Arg	Arg
Asn	Phe 610	Asp	Glu	Arg	Asn	Gln 615	Gln	Val	Asn	Asp	Arg 620	Arg	Asn	Phe	Asp
Asp 625	Arg	Asp	Gln	Asn	Val 630	Met	Asp	Arg	Arg	Asn 635	Phe	Asp	Glu	Arg	Asn 640
Gln	Gln	Val	Asn	Asp 645	Arg	Arg	Asn	Phe	Asp 650	Glu	Arg	Asn	Gln	Gln 655	Val
Asn	Asp	Arg	Arg 660	Asn	Phe	Asp	Glu	Arg 665	Asn	Gln	His	Val	Asn 670	Asp	Arg
Arg	Asn	Phe 675	Asp	Glu	Arg	Asn	Gln 680	Asn	Val	Asn	Asp	Arg 685	Arg	Asn	Phe
Asp	Glu 690	Arg	Asn	Gln	Asn	Val 695	Asn	Asp	Arg	Arg	Asn 700	Phe	Asp	Glu	Arg
Asn 705	Gln	Gln	Val	Asn	Asp 710	Arg	Arg	Asn	Phe	Asp 715	Glu	Arg	Tyr	Gln	Asn 720
Val	Asn	Glu	Arg	Arg 725	Asn	Phe	Asp	Glu	Arg 730	Asn	Gln	Gln	Val	Asn 735	Asp
Arg	Arg	Asn	Phe 740	Asp	Glu	Arg	Asn	Gln 745	His	Val	Asn	Glu	Arg 750	Tyr	Gln
Asn	Val	Asn 755	Asp	Arg	Arg	Asn	Phe 760	Asp	Glu	Arg	Asn	Gln 765	Gln	Val	Asn
Asp	Arg	Arg	Asn	Phe	Asp	Glu	Arg	Asn	Gln	His	Val	Asn	Glu	Arg	Arg



-47-

	770					775					780				
Asn 785	Phe	Asp	Glu	Arg	Asn 790	Gln	His	Val	Asn	Glu 795	Arg	Tyr	Gln	Asn	Val 800
Asn	Asp	Arg	Arg	Asn 805	Phe	Asp	Glu	Arg	Asn 810	Gln	His	Val	Asn	Glu 815	Arg
Arg	Asn	Phe	Asp 820	Gln	Arg	Ala	Pro	Asn 825	Val	Glu	Glu	Arg	Arg 830	Tyr	Met
Asp	Pro	Arg 835	Asn	Pro	Asn	Ile	Pro 840	Tyr	Val	Arg	Phe	Pro 845	His	His	Gln
Trp	Gly 850	Gln	Gly	Met	Met	Туг 855	Gly	Arg	Pro	Tyr	Tyr 860	Pro	Trp	Val	Pro
Phe 865	Met	Gly	Asp	Gly	Arg 870	Gly	Tyr	Asn	Phe	Tyr 875	Asn	Pro	His	Gln	His 880
Met	Val	Tyr	Gly	Arg 885	Pro	Tyr	Tyr	Trp	Val 890	Pro	Pro	Pro	Pro	Ala 895	Leu
Glu	Tyr	Thr	Lys 900	Gly	Phe	Asn	Pro	Met 905	Glu	Gln	Arg	Arg	Glu 910	Glu	Asp
Arg	Gly	His 915	Met	Gly	Gly	Arg	Gly 920	Ser	Arg	Tyr	Pro	G1u 925	Glu	Glu	Arg
Tyr	Asn 930	Tyr	Asn	Asn	Lys	Arg 935	Ser	Asn	Ser	Ile	Pro 940	Glu	Gly	Arg	Asn
Tyr 945	Glu	Glu	Asn	Ala	Tyr 950	Glu	Arg	Gly	Gly	Gly 955	Asn	Asn	Lys	Trp	Asp 960
Phe	Arg	Asn	Met	Tyr 965	Asp	Arg	Leu	Arg	Asp 970	Glu	Asp	Glu	Asn	Asp 975	Tyr
Asp	Gln	Pro	Pro 980	Ser	Thr	Ser	Ser	Ser 985	Asn	Arg	Gly	Arg	Gly 990	Asn	Glu
Arg	Tyr	Ser 995	Gln	Ser	Arg	Asp	Arg 1000		g Glu	ı Glu	ı Arç	g As: 10		sn Ty	yr Asn
Ser	Asp 1010		туг	Thr	Arg	g Gly 101		sn Gl	lu Ai	cg Tl		yr . 020	Asn A	Asn :	Ser
Asn	Val 1025		Ser	Ser	Ser	103		rg Gl	lu Le	eu II		co ' 035	Tyr I	ys 1	Lys
Glu	Ile 1040		ı Pro) Phe	e Gly	7 Val		er As	sn Se	er G		eu (050	Glu <i>I</i>	Asp 1	Lys
Leu	Thr 1055		ı Glu	ı Glu	ı Lev	Asr 106		lu Ai	rg Il	le Aı		rg : 065	Leu <i>l</i>	Asp :	Гуr
Thr	Val 1070		r Val	. Lys	s Asp	Met 107		ne I]	le Le	eu Ti	_	sn 1 080	His I	[le]	Leu

Ala His Glu Arg Lys Lys Tyr Thr Lys Met Gln Glu Tyr Leu Met

145

150

155



-48-

1085 1090 1095 Tyr Tyr Ser Gln Tyr Leu Glu Lys Thr Tyr Leu Val Pro Thr Ala 1105 Phe Arg Lys Lys Tyr Trp Trp Arg Val His Tyr Met Leu Thr Glu 1115 1120 Glu Val Val Lys Arg Glu Arg Thr Asp Asn Leu Asp Phe His Gln 1140 1135 1130 Phe Leu Arg Lys Gly Ser Cys Glu Lys Arg Glu Phe Leu Tyr Phe 1145 1150 1155 Ile Asn Ser Lys Arg Lys Gly Trp Ala Asp Leu Thr Glu Thr Met 1170 1160 1165 Lys Asn Ile Trp Met Glu Arg Leu Thr Tyr Lys Met Arg Lys Tyr 1180 1185 Ser Gly Ala 1190 <210> 48 <211> 300 <212> PRT <213> Plasmodium falciparum <400> 48 Met Cys Ser Thr Asn Lys Asn Leu Ala Cys Cys Lys Gly Asp Asn Val Phe Asp Gly Gln Ile Asn Gly Asn Glu Ser Tyr Pro Gln Val Val Asn 25 Lys Gln Leu Pro Pro Lys Val Leu Glu Pro Ile Ile Gln Asn Lys Ile Val Glu Ile Pro Lys Glu Val Tyr Leu Glu Lys Ile Val Glu Val Pro Gln Ile Lys Thr Val Glu Arg Ile Val Glu Gln Ile Arg Pro Val Ile 65 Lys Tyr Lys Asn Val Tyr Lys Pro Lys Ile Val Tyr Val Glu Lys Val Lys Asn Val Asp Lys Ile Ile Tyr Gln Glu Lys Ile Val Glu Val Pro Gln Ile Lys Thr Val Glu Lys Ile Val Glu Val Pro Val Tyr Val Asn Arg Glu Arg Ile Ile Thr Val Pro Arg Tyr Met Val Val Glu Lys Val Ile Pro Val Leu Lys Thr Ser Lys Arg Glu Ser Ile Met Glu Val Pro



Glu Val Asn Cys Pro His Ile Asp Ile Ser Lys Glu Val Glu Asp Lys 165 170 175

Glu Glu Ile Pro Ile Asn Glu Leu Lys Glu Asn Gln Thr Ile Ser Leu 180 185 190

Ala Asp Glu Lys Glu Ile Gln Ile Leu Asn Asp Leu Thr Ser Gln Lys 195 200 205

Val Asp Ser Asn Ala Thr Ile Asn Met Glu Gly Glu Gln Asp Thr Thr 210 215 220

Val Asp Thr Ile Thr Gln Glu Asn Phe Cys Gly Thr Val Ser Cys Asn 225 230 235 240

Phe Leu Pro Asn Tyr Pro Asn Phe Ser Lys Ile Gly Asn Pro Leu Cys 245 250 255

Lys Gly Gly Pro Glu Lys Glu Lys Arg Phe Ser Ser Ile Ser Ile Tyr 260 265 270

Lys Ser Lys Asp Ser Gly Phe Pro Ser Ile Arg Ile Ala Lys Thr Pro 275 280 285

Gln Met Phe Gln Arg Asn Leu Tyr Cys Ser Tyr Ala 290 295 300

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Leu Met Ala Gln Met Phe Leu Tyr Thr Phe Ile Thr Ile Tyr Ile Gly 35 40 45

Ser His Asp Ser Leu Lys Gln Leu Glu Ile Asp Asp Lys Thr Lys Lys 50 55 60

Ser Asp Asn Ile Thr Ala Tyr Asp Ala Met Met Phe Pro Val Ile Gly 65 70 75 80

Ser Ala Ala Leu Leu Thr Leu Tyr Phe Ala Tyr Lys Phe Leu Asp Pro 85 90 95

Phe Tyr Val Asn Leu Leu Leu Thr Leu Tyr Leu Thr Leu Ala Gly Val 100 105 110

Phe Ser Leu Gln Gly Val Phe Thr Thr Ile Leu Glu Pro Val Phe Pro 115 120 125

Asn Phe Phe Lys Lys Asp Glu Tyr Val Lys Thr Phe Lys Leu Pro Asn 130 135 140



Phe 145	Ile	Tyr	Lys	Glu	Pro 150	Ile	Val	Phe	Asn	Thr 155	Asn	Lys	Gly	Glu	Ile 160
Val	Cys	Leu	Ile	Leu 165	Ser	Phe	Ala	Ile	Gly 170	Leu	Arg	Trp	Ile	Phe 175	Tyr
Lys	Asp	Phe	Ile 180	Thr	His	Asn	Val	Leu 185	Ala	Val	Ser	Phe	Cys 190	Phe	Gln
Ala	Ile	Ser 195	Leu	Val	Ile	Leu	Ser 200	Asn	Phe	Leu	Ile	Gly 205	Phe	Leu	Leu
Leu	Ser 210	Gly	Leu	Phe	Val	Туг 215	Asp	Ile	Phe	Trp	Val 220	Phe	Gly	Asn	Asp
Val 225	Met	Val	Thr	Val	Ala 230	Lys	Ser	Phe	Glu	Ala 235	Pro	Val	Lys	Leu	Leu 240
Phe	Pro	Val	Ser	Ser 245	Asp	Pro	Val	His	Tyr 250	Ser	Met	Leu	Gly	Leu 255	Gly
Asp	Ile	Ile	Ile 260	Pro	Gly	Ile	Leu	Met 265	Ser	Leu	Cys	Leu	Arg 270	Phe	Asp
Tyr	Tyr	Leu 275	Phe	Lys	Asn	Asn	Ile 280	His	Lys	Gly	Asn	Leu 285	Lys	Lys	Met
Phe	Asn 290	Asp	Ile	Ser	Ile	His 295	Glu	Ser	Phe	Lys	Lys 300	Tyr	Tyr	Phe	Tyr
Thr 305	Ile	Ile	Ile	Phe	Tyr 310	Glu	Leu	Gly	Leu	Val 315	Val	Thr	Tyr	Cys	Met 320
Leu	Phe	Tyr	Phe	Glu 325	His	Pro	Gln	Pro	Ala 330	Leu	Leu	Tyr	Leu	Val 335	Pro
Ala	Cys	Ile	Leu 340	Ala	Ile	Leu	Ala	Cys 345	Ser	Ile	Cys	Lys	Arg 350	Glu	Phe
Lys	Leu	Met 355	Ile	Lys	Tyr	Gln	Glu 360	Ile	Thr	Asp	Lys	Ser 365	Asn	Thr	Val
Asp	Asp 370	Ala	Ser	Lys	Asn	Lys 375	Lys	Lys	Asp	Lys	Glu 380	Glu	Ile	Pro	Lys
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Tyr Ser Glu Leu Glu Asn Leu Lys Glu Glu Lys Glu Lys Arg Leu Tyr

-51-

20 25 30 Asn Asn Leu Glu Tyr Val Asn Leu Leu Asp Ile Arg Thr Leu Glu Asn 40 Lys Ser Ile Tyr Val Ser Ser Asp Leu Leu Asn Phe Leu Lys Cys Tyr 55 Ser Asn Leu Asn Ile Asn Leu Asn Lys Val Pro Tyr Asp Leu Val Tyr 70 Ser Phe Leu Leu Asp Gly Glu Leu Tyr Leu Gly Tyr Asp Ile Ser Val Phe Ile Leu Leu Val Lys Ala Glu His Phe Glu Tyr Cys Arg Arg Ile 105 100 Asp Asn Glu Asn Ser Asp Lys Lys Glu Ser Phe Arg Thr Lys Asn Lys 120 125 Ser Thr Ile Lys Arg Ser Ser Gln Ile Asp Asp Glu Asp Asn Leu Gln 135 Gly Leu Leu Ile Lys Glu Lys Glu Asp Tyr Leu Ser Phe Leu Asn Glu 150 155 Asn Asn Glu Ala Leu Lys Gln Tyr Met Glu Ser Glu Lys Arg Gly Asn Pro Leu Trp His Leu Asp Glu Ser Lys Tyr Met Asp Lys Asp Trp Tyr 185 Asp Glu Glu Asp Ser Ser Phe Ile Phe Lys Pro Thr Phe Asn Tyr Leu Gly Lys Asn Asn Asn Asn Asn Asn His Asn Asn Asn Asn Ala Phe 215 Ser Asn Phe Val Met Gly Asn Leu Ser Ser Asp Asn Ile Ser Gly Cys 225 Phe Phe Val Glu Lys Leu Asn Ala Tyr Leu Phe Ala Met Leu Asp Lys 250 Cys Ser Asn Lys Thr Val Ile Ser Val Phe Pro Tyr Glu Lys Phe Gly 260 265 Arg His Glu Ser Arg Asn Leu Ala Ile Gln Phe Ser Gln Tyr Glu Asp 280 Tyr Met His Arg Ile Ile Glu Asp Arg Leu Tyr Ala Asn Ile Gln Asn 290 295 Asn Leu Pro Ser Val His Asn Met Lys Asn Met Ser Asn Met Asn Asn 315 Ile Asn Asn Asn Asn Lys Asp Ile Ile Ile Asn Arg Ser Gly Ile Ser Asn Gly Asn Ser Gln Ser Val Pro Cys Phe Glu Asn Ile Leu Asp Tyr





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			340					345					350		
Asp	Lys	Leu 355	Lys	Phe	Val	Glu	Tyr 360	Ile	Asn	Ser	Phe	Ser 365	Asp	Val	Lys
Lys	Ser 370	Ser	Ser	Phe	Asp	Ile 375	Ile	Gly	Ser	Ser	Lys 380	Asn	Ile	Tyr	Glu
Gln 385	Gly	Glu	Asn	Leu	Lys 390	Asn	Tyr	Cys	Ile	Туг 395	His	Asn	Asn	Asn	Phe 400
Glu	Ser	Gly	Phe	Glu 405	Asn	Tyr	Ile	Leu	Glu 410	Asn	Lys	Gln	Pro	Leu 415	Glu
Leu	Ile	Glu	Asn 420	His	Phe	Asp	Ile	Met 425	Glu	Asn	Ile	Lys	Gly 430	Met	Tyr
Asp	Asn	Thr 435	Asn	Gln	Glu	Glu	Met 440	Asn	Phe	Asn	Asn	Val 445	Ser	Gly	Leu
Leu	Arg 450	Glu	Asp	Asn	Ser	Asn 455	Met	Asn	Glu	Ile	Tyr 460	Leu	Thr	Arg	Asp
Asn 465	His	Asn	Asn	Asn	Tyr 470	His	Glu	Asn	Glu	Glu 475	Asn	Ile	Tyr	Ser	Ile 480
Asn	Ile	Lys	Tyr	Ile 485	Asn	Asn	His	Phe	Asn 490	Asn	Lys	Asp	Asp	Met 495	Ile
Met	Lys	Cys	Lys 500	Asn	Met	Lys	Gly	Ser 505	Ile	Ser	Met	Asp	Asn 510	Asn	Ser
Ser	Asn	Ser 515	Asn	Ser	Asn	Asn	Thr 520	His	Phe	Glu	Lys	Thr 525	Leu	Glu	Ser
Ile	Asn 530	Pro	Asp	Asp	His	Asn 535	Ile	Phe	Asn	Ser	Glu 540	Met	Asp	Ser	Met
Lys 545	Asn	Glu	Asn	Asn	Asp 550	Glu	Glu	Glu	Gln	Thr 555	Ala	Thr	Ser	Ile	Туг 560
Asn	Ile	Leu	Gly	Lys 565	Ile	Gly	Lys	Asp	Thr 570	Tyr	Ile	Lys	Arg	Cys 575	Ser
Ser	Asn	Tyr	Asn 580	Tyr	Asp	Asn	Asn	Asn 585	Gly	Tyr	Ser	Asn	Glu 590	Ser	Ser
Asp	Asn	Tyr 595	Asn	Asn	Gly	Tyr	Asn 600	Asp	Ser	Thr	Asp	Asn 605	Asn	Asn	Gly
Tyr	Asn 610	Ser	Asn	Ser	Ser	Tyr 615	Asn	Ser	Asn	Asn	Asn 620	Glu	Asp	Asp	Asn
Asn 625	Asn	Asn	Asn	Asn	Asn 630	Asp	Glu	Asn	Cys	Asp 635	Asn	Asn	Asn	Asn	His 640
Asn	Asn	Asn	Asn	Tyr 645	Asn	Asn	Asn	Asn	Asn 650	Tyr	Gly	Asn	Asn	Asn 655	Asn
Asn	Asn	Asn	Asn	Asn	Lys	Asp	Asn	Asn	Asn	Asn	Asp	Gly	Asn	Gly	Ser





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660 665 670 Ser Asn Asn Asn Asn Asp Asp Asp Glu Glu Glu Glu Asp Asp 680 675 Glu Asp Asp Asn Asn Asn Asn Asp Asp Asp Asn Met Ser Asp Asn 695 Glu Glu Met Glu Asp Asn Asp Glu Asp Asn Asp Glu Tyr Asn Asn Ser 710 715 Asn Asp Ser Tyr Lys Tyr Glu Glu Lys Asp Ser Asn His Glu Lys Asp 730 Leu Lys Lys Asp Ile Ile Glu Gly Asp Met Ile Asn Ser Val Lys Tyr 745 Asp Lys Asn Ile Gly His His Thr Thr Asn Lys Ser Glu Ile Ser Thr 760 Asn Tyr Phe Glu Asn Ser Cys Asn Met Ser Val Asn Asn Ser Asn Asn Glu Ala Tyr Asp Asp Asn Cys Asn Asn Gly Phe Met Asn His Asp Glu 790 795 Gly Leu Thr Leu Asn Asn Gly Asn Val Ser Asn Asn Lys Cys Asp Ile Ile Ile Pro Glu Asp Gly Ser Val Met Tyr Glu Asn Met Ile Asn Arg Gly Asn Gly Leu Thr Ser Asn Ile Asn Asn Asn Asn Asn Val Ser Asn Asn Asn Ser Ile Ser Cys Asn Ala Asp Asp Asn Val Tyr Asn Asn Ile 855 Asn Asn Tyr Ile Asn Thr Tyr Met Glu Thr Thr Asn Asn Lys Asn His 870 875 865 Ile Glu Asn Arg Cys Asn Gln Asp Ser Tyr Ser Thr Asn Glu Glu Pro Leu Ser Asn His Ser Ile Asn Asp Pro Gly Lys Ile Lys Asp Gly Ile Met Tyr Asp Gly Asn Asp Leu Asp Met Asn Gly Thr Gln Glu His Ser 920 Lys Glu Glu Gly Met Asp Val Phe Glu Pro Asn Phe Phe Glu Leu Lys 930 Arg Asn Ser Ser Asp Gly Gln Asn Lys His Leu Glu Pro Gly Val Gln Lys Lys Ile Ser Lys Lys Arg Ser Lys Val Lys His Glu Arg Asn Ser

Lys Ile Leu Asp Asp Glu Lys Lys Glu Val Leu Asn Lys Val Ser Gln



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980 985 990

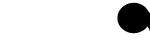
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1280 12	285 1290	
-	eu Pro His Asn Ile Ser Leu Arg	g Lys
	a Leu Glu Trp Ser Ser Phe Pho 1320	e Ser
Gly Ala Ala Ser Glu Lys Va 1325 13	al Glu 330	
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Asp Pro Ser Glu Val Phe Pro 20	Glu Ser Lys Lys Phe Phe Phe Se 25 30	er Ser
Ile Val Cys Leu Lys Thr Asn 35	Phe Asp Lys Arg Thr Gly Ala Le	eu Gly
Tyr Leu Asn Leu Ser Tyr Gly 50 55	Met Gly Ile Ile Phe Gly Ser Ph 60	ne Leu
Ala Gly Val Met Val Asn Phe 65 70	e Val Gly Ser Arg Gly Asn Leu Le 75	eu Ile 80
Ala Leu Leu Ser Gln Leu Ile 85	e Ala Leu Cys Ile Ser Thr Thr Le 90 99	
Glu Asp Pro Lys Leu Leu Lys 100	Ser Ser Asn Val Asp Lys Met Ly 105 110	ys Met
Ser Glu Ile Leu Leu Ser Ile 115	E Lys Asn Glu Tyr Ile Arg Val Le 120 125	eu Asn
Leu Phe Lys Lys Thr Tyr Gly 130 135	Ile Cys Leu Leu Ile Leu Phe Gl	ly Leu
Leu Pro Ile Leu Met Thr Lys 145 150	Phe Ala Phe Ala Pro Val	al Asp 160
Met Phe Lys Leu Thr Pro Ser 165	His Thr Ser Tyr Leu Met Thr Ty 170 17	yr Ala 75
Gly Ile Ile Thr Ile Ile Ala 180	Glu Gly Ile Leu Ala Pro Tyr Le 185 190	eu Ser
Ser Leu Leu Gly Asp Met Ile 195	Cys Cys Lys Tyr Ser Ile Pro Le 200 205	eu Thr
Leu Thr Gly Phe Leu Leu Leu 210 215	Ser Leu Cys Gly Ala Asn Glu Se 220	er Leu



Val Leu Ile Phe Met Ser Ile Pro Leu Cys Gly Gly Ala Leu Leu Tyr 225 230 235 240

Ile Cys Gly Thr Ser Gln Met Thr Lys Arg Val Glu Glu Ser Glu Leu 245 250 255

Gly Ser Ile Ile Gly Leu Asn Thr Ser Leu Phe Tyr Ala Val Thr Ile 260 265 270

Ile Ala Pro Tyr Ile Ala Phe Lys Ser Tyr Ile Ala Leu Gly Leu Gly 275 280 285

Leu Tyr Trp 290

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<213> Plasmodium falciparum

<400> 52

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Leu Lys Thr Leu Leu Asp Cys Asn Phe Ala Leu Tyr Tyr Asn Phe Lys
20 25 30

Gly Asn Gly Pro Asp Ala Gly Ser Phe Leu Asp Phe Val Asp Glu Pro 35 40 45

Glu Gln Phe Tyr Trp Phe Val Glu His Phe Leu Ser Val Lys Phe Arg 50 55 60

Val Pro Lys His Leu Lys Asp Lys Asn Ile His Asn Phe Thr Pro Cys 70 75 80

Leu Asn Arg Ser Trp Val Ser Glu Phe Leu Lys Glu Tyr Glu Glu Pro 85 90 95

Phe Val Asn Pro Val Met Lys Phe Leu Asp Lys Glu Gln Arg Leu Phe 100 105 110

Phe Thr Tyr Asn Phe Gly Asp Val Glu Pro Gln Gly Lys Tyr Thr Tyr 115 120 125

Phe Pro Val Lys Glu Phe His Lys Tyr Cys Ile Leu Pro Pro Leu Ile 130 135 140

Lys Thr Asn Ile Lys Asp Gly Glu Ser Gly Glu Phe Leu Lys Tyr Gln 145 150 155 160

Leu Asn Lys Glu Glu Tyr Lys Val Phe Leu Ser Ser Val Gly Ser Gln
165 170 175

Met Thr Ala Ile Lys Asn Leu Tyr Ser Thr Val Glu Asp Glu Gln Arg 180 185 190

Lys Gln Leu Leu Lys Val Ile Ile Glu Asn Glu Ser Thr Asn Asp Ile 195 200 205



Ser	Val 210	Gln	Cys	Pro	Thr	Tyr 215	Asn	Ile	Lys	Leu	His 220	Tyr	Thr	Lys	Glu
Cys 225	Ala	Asn	Ser	Asn	Asn 230	Ile	Leu	Lys	Cys	Ile 235	Asp	Glu	Phe	Leu	Arg 240
Lys	Thr	Cys	Glu	Lys 245	Lys	Thr	Glu	Ser	Lys 250	His	Pro	Ser	Ala	Asp 255	Leu
Cys	Glu	His	Leu 260	Gln	Phe	Leu	Phe	Glu 265	Ser	Leu	Lys	Asn	Pro 270	Tyr	Leu
Asp	Asn	Phe 275	Lys	Lys	Phe	Met	Thr 280	Asn	Ser	Asp	Phe	Thr 285	Leu	Ile	Lys
Pro	Gln 290	Ser	Val	Trp	Asn	Val 295	Pro	Ile	Phe ·	Asp	Ile 300	Tyr	Lys	Pro	Lys
Asn 305	Tyr	Leu	Asp	Ser	Val 310	Gln	Asn	Leu	Asp	Thr 315	Glu	Cys	Phe	Lys	Lys 320
Leu	Asn	Ser	Lys	Asn 325	Leu	Ile	Phe	Leu	Ser 330	Phe	His	Asp	Asp	Ile 335	Pro
Asn	Asn	Pro	Tyr 340	Tyr	Asn	Val	Glu	Leu 345	Gln	Glu	Ile	Val	Lys 350	Leu	Ser
Thr	Tyr	Thr 355	Tyr	Ser	Ile	Phe	Asp 360	Lys	Leu	Tyr	Asn	Phe 365	Phe	Phe	Val
Phe	Lys 370	Lys	Ser	Gly	Ala	Pro 375	Ile	Ser	Pro	Val	Ser 380	Val	Lys	Glu	Leu
Ser 385	His	Asn	Ile	Thr	Asp 390	Phe	Ser	Phe	Lys	Glu 395	Asp	Asn	Ser	Glu	Ile 400
Gln	Cys	Gln	Asn	Val 405	Arg	Lys	Ser	Leu	Asp 410	Leu	Glu	Val	Asp	Val 415	Glu
Thr	Met	Lys	Gly 420	Ile	Ala	Ala	Glu	Lys 425	Leu	Cys	Lys	Ile	Ile 430	Glu	Lys
Phe	Ile	Leu 435	Thr	Lys	Asp	Asp	Ala 440	Ser	Lys	Pro	Glu	Lys 445	Ser	Asp	Ile
His	Arg 450	Gly	Phe	Arg	Ile	Leu 455	Cys	Ile	Leu	Ile	Ser 460	Thr	His	Val	Glu
Ala 465	Tyr	Asn	Ile	Val	Arg 470	Gln	Leu	Leu	Asn	Met 475	Glu	Ser	Met	Ile	Ser 480
Leu	Thr	Arg	Tyr	Thr 485	Ser	Leu	Tyr	Ile	His 490	Lys	Phe	Phe	Lys	Ser 495	Val
Thr	Leu	Leu	Lys 500	Gly	Asn	Phe	Leu	Tyr 505	Lys	Asn	Asn	Lys	Ala 510	Ile	Arg
Tyr	Ser	Arg 515	Ala	Cys	Ser	Lys	Ala 520	Ser	Leu	His	Val	Pro 525	Ser	Val	Leu





Tyr Arg Arg Asn Ile Tyr Ile Pro Glu Thr Phe Leu Ser Leu Tyr Leu Gly Leu Ser Asn Leu Val Ser Ser Asn Pro Ser Ser Pro Phe Phe Glu 550 Tyr Ala Ile Ile Glu Phe Leu Val Thr Tyr Tyr Asn Lys Gly Ser Glu 565 Lys Phe Val Leu Tyr Phe Ile Ser Ile Ile Ser Val Leu Tyr Ile Asn 585 580 Glu Tyr Tyr Tyr Glu Gln Leu Ser Cys Phe Tyr Pro Lys Glu Phe Glu 600 Leu Ile Lys Ser Arg Met Ile His Pro Asn Ile Val Asp Arg Ile Leu 615 Lys Gly Ile Asp Asn Leu Met Lys Ser Thr Arg Tyr Asp Lys Met Arg 630 635 Thr Met Tyr Leu Asp Phe Glu Ser Ser Asp Ile Phe Ser Arg Glu Lys 645 650 Val Phe Thr Ala Leu Tyr Asn Phe Asp Ser Phe Ile Lys Thr Asn Glu 665 Gln Leu Lys Lys Lys Asn Leu Glu Glu Ile Ser Glu Ile Pro Val Gln Leu Glu Thr Ser Asn Asp Gly Ile Gly Tyr Arg Lys Gln Asp Val Leu Tyr Glu Thr Asp Lys Pro Gln Thr Met Asp Glu Ala Ser Tyr Glu Glu Thr Val Asp Glu Asp Ala His His Val Asn Glu Lys Gln His Ser Ala 730 His Phe Leu Asp Ala Ile Ala Glu Lys Asp Ile Leu Glu Glu Lys Thr Lys Asp Gln Asp Leu Glu Ile Glu Leu Tyr Lys Tyr Met Gly Pro Leu 760 Lys Glu Gln Ser Lys Ser Thr Ser Ala Ala Ser Thr Ser Asp Glu Ile 775 770 Ser Gly Ser Glu Gly Pro Ser Thr Glu Ser Thr Ser Thr Gly Asn Gln 795 Gly Glu Asp Lys Thr Thr Asp Asn Thr Tyr Lys Glu Met Glu Glu Leu Glu Glu Ala Glu Gly Thr Ser Asn Leu Lys Lys Gly Leu Glu Phe Tyr Lys Ser Ser Leu Lys Leu Asp Gln Leu Asp Lys Glu Lys Pro Lys Lys



Lys Lys Ser Lys Arg Lys Lys Lys Arg Asp Ser Ser Ser Asp Arg Ile 850 855 860

Leu Leu Glu Glu Ser Lys Thr Phe Thr Ser Glu Asn Glu Leu Met Arg 865 870 875 880

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Cys Glu Tyr Cys Asn Glu His Thr Tyr Val Lys Gly Lys Lys Ala Pro 50 55 60

Ser Asp Pro Gln Cys Ala Asp Ile Lys Glu Glu Cys Lys Glu Leu Leu 65 70 75 80

Lys Glu Lys Gln Tyr Thr Asp Ser Val Thr Tyr Leu Met Asp Gly Phe
85 90 95

Lys Ser Ala Asn Asn Ser Ala Asn Asn Gly Lys Lys Asn Asn Ala Glu 100 105 110

Glu Met Lys Asn Leu Val Asn Phe Leu Gln Ser His Lys Lys Leu Ile 115 120 125

Lys Ala Leu Lys Lys Asn Ile Glu Ser Ile Gln Asn Lys Lys His Leu 130 135 140

Ile Tyr Lys Asn Lys Ser Tyr Asn Pro Leu Leu Ser Cys Val Lys 145 150 155 160

Lys Met Asn Met Leu Lys Glu Asn Val Asp Tyr Ile Gln Lys Asn Gln
165 170 175

Asn Leu Phe Lys Glu Leu Met Asn Gln Lys Ala Thr Tyr Ser Phe Val 180 185 190

Asn Thr Lys Lys Lys Ile Ile Ser Leu Lys Ser Gln Gly His Lys Lys 195 200 205

Glu Thr Ser Gln Asn Gln Asn Glu Asn Asn Asp Asn Gln Lys Tyr Gln



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Asp	Glu	Asp	Thr	Asn 245	Asp	Glu	Glu	Asp	Thr 250	Asn	Asp	Asp	Glu	Asp 255	Thr
Asn	Asp	Asp	Glu 260	Asp	Thr	Asn	Asp	Glu 265	Glu	Asp	Thr	Asn	Asp 270	Glu	Glu
Asp	His	Glu 275	Asn	Asn	Asn	Ala	Thr 280	Ala	Tyr	Glu	Leu	Gly 285	Ile	Val	Pro
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Lys 385	Leu	Lys	Asp	Leu	Leu 390	Leu	Arg	Leu	Leu	Туг 395	Lys	Ala	Tyr.	Val	Ser 400
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Gly	Ile	Lys 435	Leu	Leu	Phe	Ser	Lys 440	Val	Lys	Ser	Leu	Leu 445	Lys	Lys	Leu
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Thr 465	Lys	Ser	Met	Glu	Glu 470	Pro	Lys	Val	Lys	Ala 475	Gln	Pro	Ala	Leu	Arg 480
Gly	Val	Glu	Pro	Thr 485	Glu	Asp	Ser	Asn	Ile 490	Met	Asn	Ser	Ile	Asn 495	Asn
Val	Met	Asp	Glu 500	Ile	Asp	Phe	Phe	Glu 505	Lys	Glu	Leu	Ile	Glu 510	Asn	Asn
Asn	Thr	Pro 515	Asn	Val	Val	Pro	Pro 520	Thr	Gln	Ser	Lys	Lys 525	Lys	Asn	Lys
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Lys Asp Lys Lys His Ile 595	Glu Ala Ile Asn Asn 600	Asp Ile Gln Ile Ile 605	
Lys Gln Glu Leu Gln Ala 610	Ile Tyr Asn Glu Leu 615	Met Asn Tyr Thr Asn 620	
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Ala Ile Thr Lys Gln Ile 660	Glu Ala Glu Val Asp 665	Ala Leu Ala Pro Lys 670	
Asn Lys Glu Glu Glu Glu 675	Lys Glu Lys Glu Lys 680	Glu Glu Lys Glu Lys 685	
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-63-_

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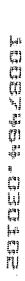


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1

-1-